

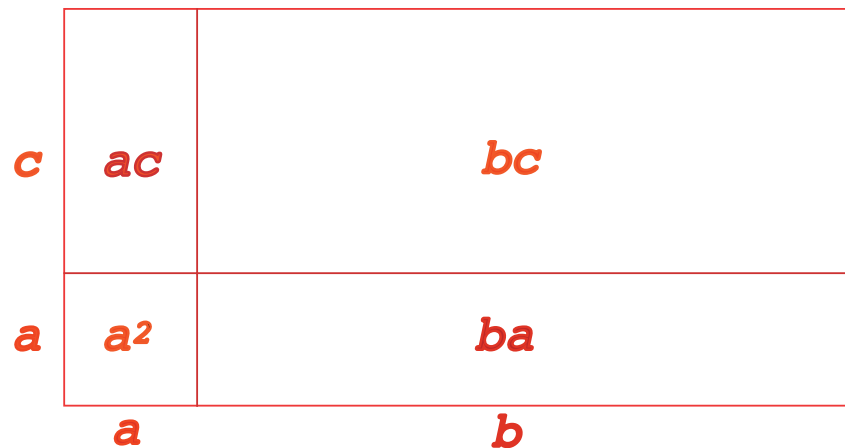
Review for Exam 1: ANSWERS IN RED

1. 19311

2. (a) 0, 7 (b) 24, 9 (c) 15, 0 (d) 15, 7

3. (a) $3 \times 2 + 4 - 6 = 4$ $3 \times (2 + 4) - 6 = 12$ $3 \times (2 + 4 - 6) = 0$
 (b) $4 \times 3 + 6 \div 2 = 15$ $4 \times (3 + 6) \div 2 = 18$ $4 \times (3 + 6 \div 2) = 24$ $(4 \times 3 + 6) \div 2 = 9$

4.



5. (a) 2,4,6,8,10 (b) The set is empty

6. (a) \emptyset , {Your 1110 instructor} (b) \emptyset , $\{\alpha\}$, $\{\beta\}$, $\{\gamma\}$, $\{\alpha, \beta\}$, $\{\alpha, \gamma\}$, $\{\beta, \gamma\}$, $\{\alpha, \beta, \gamma\}$ (c) \emptyset

7. (a) (b) (c)

$1 \rightarrow u$ and $1 \rightarrow v$ None $1 \rightarrow u$ $1 \rightarrow v$ $1 \rightarrow w$ $1 \rightarrow u$ $1 \rightarrow v$ $1 \rightarrow w$
 $2 \rightarrow v$ $2 \rightarrow u$ $2 \rightarrow v$; $2 \rightarrow w$; $2 \rightarrow u$; $2 \rightarrow w$; $2 \rightarrow u$; $2 \rightarrow v$
 $3 \rightarrow w$ $3 \rightarrow v$ $3 \rightarrow w$ $3 \rightarrow u$ $3 \rightarrow v$ $3 \rightarrow u$

8. (a) arithmetic 12,14,16,18 100 $2n$ (b) arithmetic 12,14,16,18 98 $2(n - 1)$ (c) arithmetic 26,31,36,41 $246 + 5(n - 1)$

(d) geometric 3125,15625,78125,390625 $5^{49} 5^{n-1}$ (e) geometric 1,1,1,1 1 1

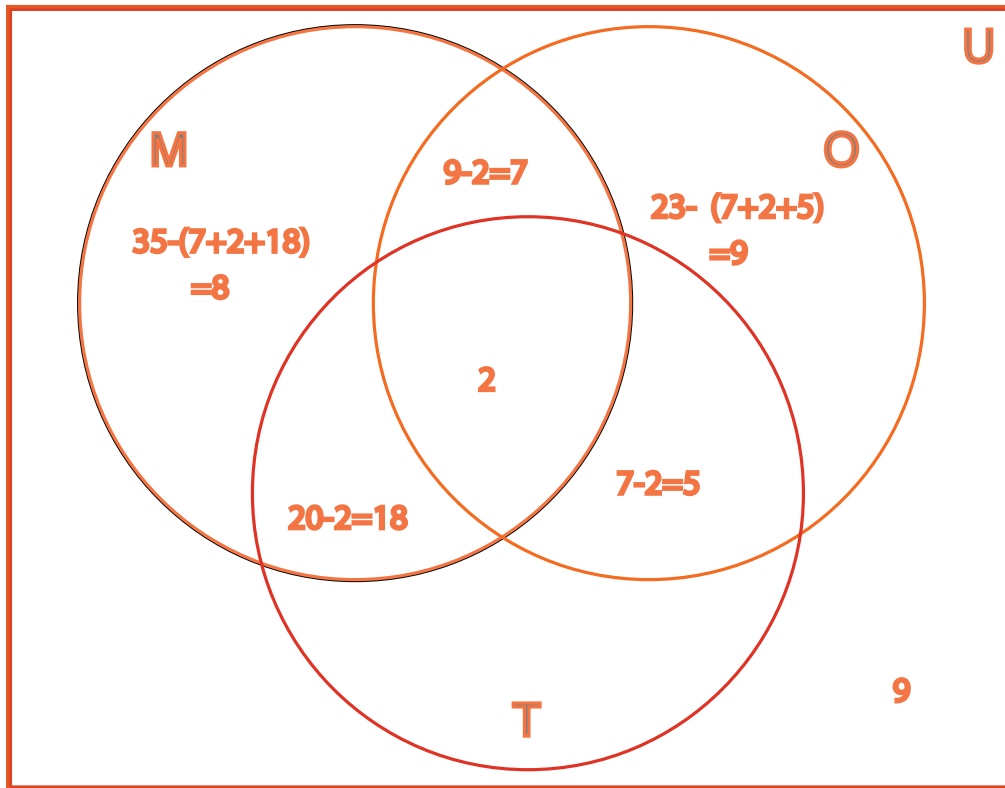
(f) geometric 32,64,128,256 $2^{49} 2^{n-1}$ (g) neither 0,0,0,0 0 the n th term is 1 if n belongs to the sequence 2, 5, 9, 14, 20, 27, ... and 0 otherwise (h) geometric 5, -5, 5, -5 $5 5(-1)^n$

9. (a)

(b)

(c)

10. (a)



(b) 2 (c) $T - (M \cup O)$

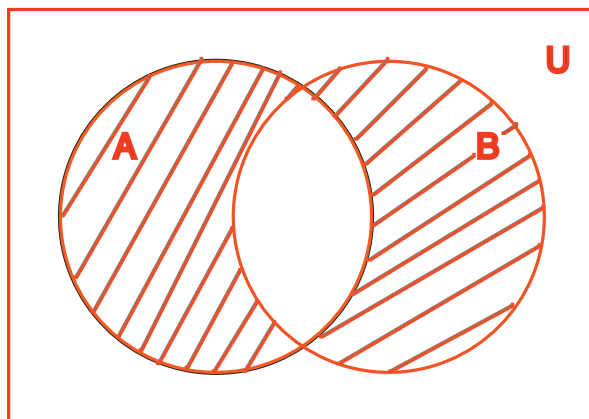
11. Dr. Slam bought 12 pair of cufflinks in bulk for \$20 total. Each additional pair cost him \$40. If he spent \$940 on his entire collection, how many pair of cufflinks does he have? He has 35 pair.

12. You can't divide a nonzero whole number by zero, because $a \div 0 = x$ would mean $x0 = a$, which is impossible if a is not zero. Also, you can't divide 0 by 0 because $0 \div 0 = x$ would mean $x0 = 0$, and since ANY x would make this work, you can't solve for x .

13. \$1,045,000

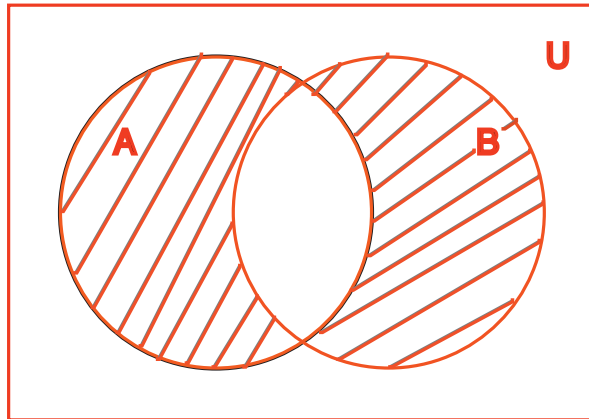
14. \$46,080,000

15. (a)



(b) Because of the symmetry in the Venn diagram.

(c)



(d) $A \Delta B = (A \cup B) \cap \overline{(A \cap B)}$

16. (a) 6 (b) 7, 8, 9

17. (a) 1, 2, 4, 8, 16 (b) 1, 2, 4, 7, 11 (c) 1, 2, 4, 5, 7, 8

18. Beware of inductive reasoning: things that look to be the same based on just checking a few cases may not always be the same.

19. (a) 36, 67, 98, 129

(b) 10, 20, 40, 80

20. (a) $4 \cdot 3 \cdot 2 \cdot 1 = 24$ (b) $(2 \cdot 1) \cdot (4 \cdot 3 \cdot 2 \cdot 1) = 48$ (c) $4 \cdot (5 \cdot 4 \cdot 3 \cdot 2 \cdot 1) = 480$

(d) $4 \cdot 4 \cdot (4 \cdot 3 \cdot 2 \cdot 1) = 384$

21. (a) $h = V \div (\ell \cdot d)$ (b) $s = 3600h$ (c) $y = i \div 36$ (d) $h = 168w$